



Organic Farming and Sustainability

Life cycle assessments of organic foods

Life cycle assessments (LCAs) have become an established tool for the assessment of ecological sustainability in the farming and food sector. They help to improve production, provide a basis for political decision-making, and deliver consumer information. Life cycle assessments are also used to compare agricultural production systems.

Contrary to expectations, in product-based comparisons, foods produced in extensive production systems such as organic farming are often shown to have a lower eco-efficiency than foods from more intensive production systems. However, eco-efficiency alone is not a sufficient indicator of whether an agricultural product was produced in an environmentally sound manner. For a comprehensive environmental assessment of agricultural products, site-specific production factors must be integrated more firmly into life cycle assessments. To this end, a wider perspective needs to be taken.

Life cycle assessment – a tool designed to estimate environmental relevance

Life cycle assessments were originally developed in order to assess the environmental impacts of industrial processes and products (Fig. 1, p. 2). They are now increasingly used to assess agricultural processes and products.

A life cycle assessment (LCA) allows for the quantification of a product's impact on the environment over its entire life cycle. It takes account of environmental impacts caused during raw material

extraction, production, utilisation and disposal (or recycling) including all transport processes. Moreover, life cycle assessments allow for comparisons to be made between the environmental impacts of different products that provide the same function. They are compared upon a common benchmark (the functional unit). To give an example from the food sector, this makes it possible, for example, to compare the environmental impact of an organic tomato with that of a conventionally produced tomato.